

ROBERT BROWN ON RAFFLESIA

DAVID J. MABBERLEY

Rijksherbarium/Hortus Botanicus, P.O. Box 9514, 2300 RA Leiden, The Netherlands;
Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney 2000, Australia

SUMMARY

Although not the first publication validating the generic name *Rafflesia*, Robert Brown's first classic paper on *Rafflesia arnoldii* was issued as a preprint in April 1821, antedating the publication of the possibly threatening name, *R. titan* Jack; Brown's second paper on the genus was also first distributed as a preprint, in September 1844. New names first published in these papers are listed and remarks on the typification of Malesian species (two lectotypifications proposed) added. *Rafflesia horsfieldii* is apparently conspecific with *R. patma*, which, if proved, should prompt a move for the conservation of the later name *R. patma*. Precise datings for certain parts of the Proceedings and Transactions of the Linnean Society are presented and, as a result, it is necessary to propose a new combination, *Thottea piperiformis* (Griff.) Mabb. (Aristolochiaceae).

Key words: *Rafflesia*, Rafflesiaceae, *Thottea*, Linnean Society publications, Robert Brown.

BROWN ON RAFFLESIA (1821)

Robert Brown read his paper on *Rafflesia arnoldii* R.Br. at a meeting of the Linnean Society of London on 30 June 1820 and his 'Additional observations', based on information from Sir Stamford Raffles and William Jack, at another, on 21 November. Before the second meeting, it was reported in *Annals of Philosophy* 16: 129–130 (Aug. 1820) that the materials Brown used, including drawings made by Franz Bauer, were deposited in Sir Joseph Banks's herbarium (now BM). In the next issue (16: 225, Sept. 1820), S.F. Gray validated the generic name, *Rafflesia*, in his report of the June meeting. Accounts were also published on the Continent [e.g. Anon. in *Algemene Konst- en Letter-bode* 1820 (46): 318–319 – 10 Nov. 1820, and Kraus (1820) – 28 Nov. 1820], but Brown's paper itself, illustrated by Franz Bauer and first using the specific binomial, *R. arnoldii*, did not appear in the Society's *Transactions* (13: 201–234, tt. 15–22) until June or, at the earliest, late May 1821 (Raphael, 1970).

Because the issue of the ponderously issued *Transactions* was not distributed until so late, there has always been a suspicion (see Meijer, 1997 for discussion) that the name *Rafflesia arnoldii* is threatened by *R. titan* Jack (1821), which plant Brown considered conspecific, as did Meijer (1958; but see also Meijer, 1997). However, the earliest indication of Jack's publication being distributed from Sumatra, where it was printed, is in his letter (now preserved in the Brown Correspondence in The Natural History Museum, London) of 23 May 1821 to Brown, accompanying a copy of his paper.

In England Bauer was still working on the illustrations on 20 March 1821 (Mabberley, 1985: 225), but he must soon have finished them because, in the library of the Rijksherbarium Leiden, there is a presentation copy of a preprint (Fig. 1), complete with plates, of Robert Brown's classic paper on what W.J. Hooker called "that stupendous flower of Sumatra" (Mabberley, 1985: 219–226), dated April 1821. The preprint belonged to George Caley (1770–1829), who had been Banks's resident collector in

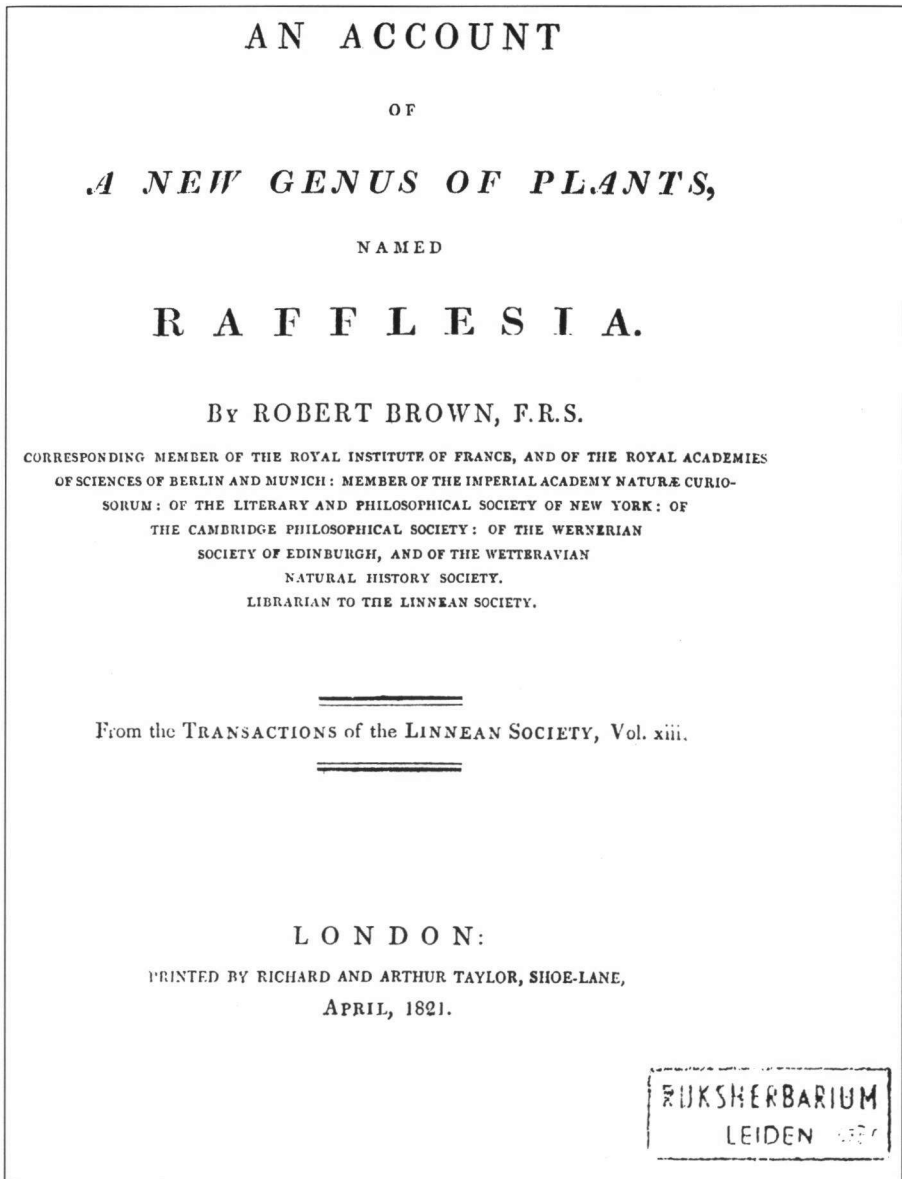


Fig. 1. Title page of Brown, 'Rafflesia' (Rijksherbarium Leiden).

New South Wales, when Brown stayed in Australia from 1801 to 1805, and remained Brown's friend and correspondent.

Caley's library was sold by Christie's in London in June 1829 (Webb, 1995); Brown's copy of the sale catalogue survives at the Linnean Society¹. The *Rafflesia* preprint was in a mixed lot (83), which included a copy of Brown's paper on Proteaceae (1810), again possibly a preprint of the publication in the Transactions (Mabberley, 1985: 411). According to Brown's annotated copy of the catalogue, lot 83 was bought (for £1) by one 'Rich', that is the firm of Obadiah Rich (1783–1850), London booksellers, who acted as agents for Benjamin Delessert in Paris (Miller, 1970). The Rijksherbarium acquired the *Rafflesia* paper only recently, however, perhaps from the library of H. J. Lam (Cees Lut, pers. comm.). It has its own pagination (pp. 34) with no reference to the Transactions volume number at the foot of the letterpress as seen in p. 201 etc. of the journal article; the plates XV–XXIII (XV coloured) are as issued later in the Transactions. According to a note preserved in Brown's Slip Catalogue of plant descriptions (MSS B. 65/55/216 – BM), Caley's was one of a number of copies to be sent out after an initial 28 copies had been distributed to colleagues including both Franz and Ferdinand Bauer, William Jack and many botanists on the Continent, besides the Empress of Russia, whose copy was acknowledged by the Chaplain of the Russian Embassy in August 1821, and for which Brown received a ring as a mark of gratitude (Mabberley 1985: 225).

The recognition of the Brown preprint (hereafter called 'Rafflesia') now removes the supposed threat from *Rafflesia titan*, which name is thus merely a superfluous re-naming of Arnold's plant, correctly known as *R. arnoldii* R.Br. (April 1821).

BROWN ON FEMALE RAFFLESIA (1844)

Brown often had his botanical findings preprinted and issued the preprints himself, sometimes presenting copies to colleagues during his extensive European travels to herbaria and botanic gardens and at international conferences (Mabberley, 1986). His second paper on *Rafflesia*, read in 1834 and of which the accompanying plates² by Franz and Ferdinand Bauer were soon being shown at such meetings on the Continent, was not published in the Transactions of the Linnean Society (19: 221–247, tt. 22–30) until November 1844 (Raphael, 1970). But, again and typically, Brown had it preprinted (Fig. 2) and was distributing copies early in September 1844 at the latest (Mabberley, 1985: 315). Korthals's presentation copy is now preserved in the Rijksherbarium library. Both this and a second copy, in the author's possession, have plates differing from those published later in the Transactions in that they are pulls on fine paper glued to thicker paper: moreover, they do not bear the reference to the Transactions volume and are numbered differently from those published there, viz. I, [2] and [3] numbered in pencil in Brown's own hand, IV–IX.

- 1) The only other known survivor of Caley's extensive library is a sale catalogue relating to Bullock's Egyptian Museum (1819), probably part of Lot 1 bought by one Jacobs; in 1988 it was in the library of the Department of Zoology, University of Cambridge, United Kingdom (Joan Webb, pers. comm.).
- 2) Original artwork at BM.

ON THE
FEMALE FLOWER AND FRUIT
OF
RAFFLESIA ARNOLDI
AND ON
HYDNORA AFRICANA.

BY
ROBERT BROWN, ESQ.

D.C.L. OXF.; LL.D. EDIN.; F.R.S.; HON. MEMB. R.S. EDIN. AND R.I. ACAD.; V.P.L.S.
ONE OF THE EIGHT FOREIGN ASSOCIATES OF THE ACADEMIES OF SCIENCES IN THE ROYAL INSTITUTES OF
FRANCE AND OF HOLLAND; FOREIGN MEMBER OF THE IMPERIAL AND ROYAL ACADEMIES OF SCIENCES
OF RUSSIA, PRUSSIA, SWEDEN, NAPLES, BAVARIA, DENMARK, BELGIUM, BOLOGNA, UPSALA,
AND OF THE IMPERIAL ACADEMY OF NATURALISTS, ETC.

LONDON:
PRINTED BY RICHARD AND JOHN E. TAYLOR, RED LION COURT, FLEET STREET.
1844.

Fig. 2. Title page of Brown, 'Female Rafflesia' (private collection).

BROWN'S NEW TAXA

The correct citations for the new taxa (with notes on the typification of Malesian ones) are therefore as follows (all are amendments to Index Kewensis, for example):

tribe **Apodantheae** R.Br., Female Rafflesia: 26 (Sept. 1844).

Belvisiaceae R.Br., Rafflesia: 22 (April 1821, 'Belvisieae') = **Lecythidaceae**.

Cytinus americanus R.Br., Female Rafflesia: 26 (Sept. 1844) = **Bdallophytum americanum** (R.Br.) Harms (Rafflesiaceae).

Hydnora americana R.Br., Female Rafflesia: 25 (Sept. 1844) = **Prosopanche americana** (R.Br.) Baill. (Hydnoraceae).

tribe Hydnoceae R.Br., Female Rafflesia: 24 (Sept. 1844) = **Hydnoraceae** C. Agardh.

Pilostyles blanchetii (Gardner) R.Br., Female Rafflesia: 27 (Sept. 1844) (Rafflesiaceae).

Pilostyles calliandrae (Gardner) R.Br., Female Rafflesia: 27 (Sept. 1844) (Rafflesiaceae).

Rafflesia R.Br. ex Gray, Ann. Phil. 16: 225 (Sept. 1820); R. Br., Rafflesia: 7 (Apr. 1821), Rafflesiaceae. — Type: *R. arnoldii* R.Br.

Rafflesia arnoldii R.Br., Rafflesia: 7, tt. XV–XXII (April 1821, 'arnoldi'), Rafflesiaceae.

Rafflesia titan Jack, App. Descr. Mal. Pl.: 1 (May 1821), nom. superfl., illegit. — Type (lectotype selected here): Sumatra, Bengkulu, Manna River, 'Pulo Lebbar', 19–20 May 1818 [cf. Mabberley, 1985: 221–222], *Arnold and Raffles s.n.* [spirit material of male buds, marked "original to Linn. Trans. vol. xiii pl. 20 [i.e. 'Rafflesia arnoldi' in R.Br., Rafflesia: t. XX³ (April 1821), later issued as t. 20 in Trans. Linn. Soc. Lond. 13 (reproduced in Mabberley, 1985: t. 37)]" – BM (not 'K' as in Meijer, 1997)].

N.B. The other original material, i.e. a drawing of the flower by Arnold (finished by Raffles), is apparently lost. Further spirit material was received from Raffles by Brown on 3 Aug. 1821 (Brown MSS B. 65/55/221 – BM) and this is probably that at BM marked with a nineteenth-century label 'Sir T. S. Raffles' and that discussed by Brown in his 'Additional remarks' of November 1820.

Rafflesia cumingii R.Br., Female Rafflesia: 23 (Sept. 1844), nom. superfl. pro **R. manillana** Teschem. (Rafflesiaceae).

Brown merely renamed Teschemacher's plant to bring it into line with the others named after people [his *R. arnoldii* was a substitute for his MS '*Arnoldia grandiflora*' for 'the great flower' (Mabberley, 1985: 222)], so the type is therefore the same as that of *R. manillana* and not a *Cuming* specimen as asserted by Meijer (1997).

3) The original watercolour drawing was in private hands in 1985 (J. Bastin, pers. comm.).

Rafflesia horsfieldii R.Br., *Rafflesia*: 25 (April 1821); Schott & Endl., Melet. Bot.: 14 (1832); R.Br., *Female Rafflesia*: 22 (1844), *Rafflesiaceae*. — Type: drawing made by *Horsfield* in Java and examined by both *Arnold* (Mabberley, 1985: 222) and *Brown*, lost?

Inexplicably, *R. horsfieldii* is not discussed by *Meijer* (1997), but, from *Brown*'s remarks, the species, based on the Javanese plant drawn by *Horsfield* (Mabberley, 1985: 222), would seem to be conspecific with that later called *R. patma*:

Rafflesia patma Blume in *Batav. Cour.* [Java Gov. Gaz.] 1825, 12: [4] (23 March 1825).

Type: Java, *Blume s.n.* (Nusa Kambangan, Java – L, 'type' teste *Meijer*, 1997), the only material in the herbarium boxes or spirit collections at L now being that collected by *J. Haak* also at Nusa Kambangan in the 1880s (spirit colls 33, 35, 2154, 2184, 2520, 3230); in 1850 *Robert Brown* examined specimens of *Blume*'s *R. patma*, during his second visit to Leiden (Mabberley, 1985: 375), but his diary entry (Fig. 3) is ambiguous, so that it is unclear if *Blume*'s gatherings were those then there, or, at least, those which he saw. Today the only *Blume* material at L is filed as two accessions in the carpological collection, but there is also *Blume* material in the carpological collection at K. Of the Leiden carpological collections attributed to *Blume*, *Carpologica* 2973 is from Nusa Kambangan and comprises a number of flowers which seem to have been dried from a spirit-preserved collection: I here formally lectotypify the species name with it and consider the *Kew* collection an isolectotype.

However, *Backer & Bakhuizen* (1964) thought *Rafflesia horsfieldii* might be *Rhizanthus zippelii* (*Blume*) *Spach* (*Rafflesiaceae*), which has much smaller flowers. Indeed, until the *Horsfield* drawing is recovered, there remains a lingering doubt as to the identity of *Rafflesia horsfieldii*, which, if ever dispelled, should prompt a proposal for the conservation of the well-known name *R. patma*.

Sapria griffithiana R.Br., *Female Rafflesia*: 24 (Sept. 1844), nom. superfl. pro ***S. himalayana*** *Griff.* (*Rafflesiaceae*).

Brown renamed *William Griffith*'s *S. himalayana* in line with his personal parasitic nomenclature. However *Brown*'s mention (see especially p. 21) of the *Griffith* name as published (*Griffith* in *Proc. Linn. Soc. London* 1: 216) provides a piece of evidence to suggest that the part of the Proceedings containing *Griffith*'s paper came out beforehand. This part [1 (22)] is the only one for which the date of publication has so far been obscure (*Gage & Stearn*, 1988: 213)⁴. It is of course possible that *Brown* saw the Proceedings in proof or before distribution and the part was sent out after *Brown*'s

4) The evidence therefore suggests that Proceedings 1 (22) had appeared by early Sept. 1844: as the part begins abruptly in the middle of a report of a session, it is perhaps likely that it was indeed distributed with part 21 – hence there being no record if its being distributed as a separate item. From other sources, it is now also possible to pinpoint the dates of publication of parts of the Society's Transactions more accurately too, thus updating *Raphael* (1970) and *Gage & Stearn* (1988: 211–212):

Transactions of the Linnean Society 9 – 14 Nov. 1808 [copies were being sent out on that day to *Dawson Turner* and *W.J. Hooker* (*Dawson Turner Letters* 1808 n. 124; *Trinity College, Cambridge*)]. — *Transactions of the Linnean Society* 10 (2) – 1 June 1811 (the *Monthly Magazine* of that date describes it as 'just published' and it is also noticed in the *London Medical and Physical Journal* 25: 551 (June 1811). — *Transactions of the Linnean Society* 13 (1) – 20 June 1821 [according to *Transactions of the Geological Society* n.s. 1 (1824)].

Monday Sept 9
 Breakfasted in the
 Hotel (Gooldee Low)
 P. S. moderate
 at half past 9 a Chinese
 called to & I transferred my
 luggage to his home
 Examined the spec. mens
 of *Rafflesia* from Java
 pronounced to be *Rafflesia*
R. Patma
 The greater number are
 males with no appear-
 ance of placenta
 but 9 younger specimens
 were female. with nos
 cent ovule the nucleus
 hardly distinct from
 the pedicel which is quite
 straight.
 Resembling *R. Anthura*
 as in *R. Stroobli*
 from w^h this species
 differs solely in the
 lacunae, perianth
 of the internal stipe
 of tube being heavy only
 most want like a paper
 not elongated as in
 the *Rafflesia* plant
 and that the
 calyx on *Rafflesia*
 when 9 feet high but
 has more like a cone

Fig. 3. Brown's pocket diary entry for 9 September 1850 (The Natural History Museum, London, reproduced with permission).

paper had been issued, in which case *S. himalayana* would be a superfluous name for *S. griffithiana*, but the evidence so far presented militates against that: certainly Brown (p. 21) was avowedly replacing Griffith's published name. Very unfortunately the compilers of Index Kewensis and similar works have not always picked up the priority of the new names published in this paper by Griffith, getting the date wrong or attributing them to his later publications in the Transactions⁵.

Smeathmannia Sol. ex R. Br., *Rafflesia*: 20 (April 1821), Flacourtiaceae.

Smeathmannia laevigata Sol. ex R. Br., **S. media** R. Br., **S. pubescens** Sol. ex R. Br., *Rafflesia*: 21 (April 1821), Flacourtiaceae.

Thompsonia R. Br., *Rafflesia*: 21 (April 1821) = **Deidamia** Noroña ex Thouars (Passifloraceae).

ACKNOWLEDGMENTS

In research for this paper, I am grateful for help from Pieter Baas, Ding Hou, Stans Kofman and Cees Lut (L), Petra Hoffmann (K), Judith Magee and Roy Vickery (BM), David Moore (Aldershot), Anne Sing (OXF), and Joan Webb (Sydney).

REFERENCES

- Backer, C.A. & R.C. Bakhuizen van den Brink Jr. 1964. *Flora of Java* 1: 166.
- Gage, A.T. & W.T. Stearn. 1988. *A bicentenary history of the Linnean Society of London*. Academic Press, London.
- Kraus, 'Dr.' 1820. *Rafflesia*, eine neue Pflanzengattung. *Flora* 2, 44: 699–700.
- Mabberley, D.J. 1985. *Jupiter botanicus*. Robert Brown of the British Museum. Cramer, Braunschweig.
- Mabberley, D.J. 1986. Robert Brown on *Pterocymbium* (Sterculiaceae). *Arch. Nat. Hist.* 13: 307–312.
- Meijer, W. 1958. A contribution to the taxonomy and biology of *Rafflesia arnoldi* [sic] in West Sumatra. *Ann. Bogor.* 3: 33–44.
- Meijer, W. 1997. *Rafflesiaceae*. *Flora Malesiana* I, 13: 1–42.
- Miller, H.S. 1970. The herbarium of Aylmer Bourke Lambert. Notes on its acquisition, dispersal, and present whereabouts. *Taxon* 19: 489–553.
- Raphael, S. 1970. The publication dates of the Transactions of the Linnean Society of London, series I, 1791–1875. *Biol. J. Linn. Soc.* 2: 61–76.
- Webb, J. 1995. *George Caley, Nineteenth Century naturalist*. Beatty, Chipping Norton, NSW.
- 5) e.g. **Balanophora burmannica** Griff., *Proc. Linn. Soc.* 1: 219 (1844 = *B. fungosa* Forst. & Forst. f., *Balanophoraceae*) is rendered as, in the circumstances, the nonsensical '*burmanniana*' and *B. polyandra* Griff. op. cit.: 220 (1844) is cited as from 1851 in the Transactions, but, fortunately, recent monographers have overcome these shortcomings. Again *Asiphonia piperiformis* in this paper is given as from the Transactions of late 1845, though the name provides the earliest epithet for the plant recently renamed *Thottea corymbosa* (Griff.) Ding Hou (*Aristolochiaceae*):
- Thottea piperiformis** (Griff.) Mabb., *comb. nov.*
- Asiphonia piperiformis* Griff., *Proc. Linn. Soc. Lond.* 1: 218 (1844); *Trans. Linn. Soc. Lond.* 19: 333 (1845).
- Bragantia corymbosa* Griff., *Trans. Linn. Soc. Lond.* 19: 335 (1845), nom. superfl., illegit.
- Thottea corymbosa* (Griff.) Ding Hou, *Blumea* 27: 320, f. 4 (1981). — Type: Malay Peninsula, Malacca ['ad margines sylvarum primaevarum, copiosè versùs Ayer Punnus Rhim'], *Griffith s.n.* (K).